

AMATEUR SATELLITE REPORT

AMSAT® NA Newsletter for the Amateur Radio Space Program



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KO5I named AMSAT Manager

The following is a press release by the Board of Directors of AMSAT-NA:

In what is viewed as a move to prepare AMSAT-NA for the Phase IV Geosatellite era, to strengthen management structures to allow for more efficient and productive use of resources, and to bolster AMSAT's business posture, the AMSAT-NA Board of Directors have retained the services of Doug Loughmiller, KO5I in the capacity of General Manager. Loughmiller, who was elected AMSAT-NA President last November will continue to serve in that volunteer capacity.

With unprecedented opportunities and challenges ahead for the amateur satellite program, the AMSAT Board of Directors in consultations with the volunteer management team, felt that it was necessary to make a commitment to the future of the program by charging an individual with the professional responsibility of managing the organization on a full time basis. The possibility of significant opportunities for fully funding Phase IV, many opportunities surrounding MicroSat technologies, possible involvement in Phase III-D, design studies being requested by SSI on the Lunar Polar Orbiter, teaming agreements with the World Space Foundation on a solar sail project, along with the need to build a solid financial foundation for the burgeoning activities of AMSAT-NA, all led the board of directors to deem it necessary for us to have a full time manager serving the board in its role of steering the course for the future of AMSAT-NA. The first responsibility laid on General Manager Loughmiller was to come up with a detailed plan for the future of AMSAT-NA, along with clearly defined objectives, and a plan to acquire the means to achieve these goals by the time of the annual meeting in Des Moines in November.

Members may expect to see greater visibility of our efforts throughout Amateur Radio and related scientific publications in the months ahead. In addition, Doug's focus on a broad based fund raising effort will significantly aid future project funding. He has proceeded in the making of a five year plan, and providing details of our operation to the ARRL Foundation in anticipation of making a request for funding from the Foundation. He has been in touch with

several foundations, at least one of which has proposed a future mission and funding of it. These kinds of activities are amongst the reasons the board determined that President Loughmiller should become General Manager Loughmiller and work for us the members of AMSAT-NA on a full time basis.

KO5I is a well known AMSAT volunteer, having held numerous positions within the organization over the past several years. His long commitment as a volunteer, his dedication to the members of AMSAT and its goals, are amongst the reasons the board of directors deemed him the best man for the job at this time. Please extend to Doug, along with the officers and directors, the warmest wishes for his continued success.

IBM-PC/XT/AT and Clones: N4HY QUIKTRAK 4.0

By Keith Pugh, W5IU

This is AMSAT's premier program considered by many veteran satellite operators to be the best MS-DOS-based software available for satellite prediction, tracking, and planning. Based upon new algorithms developed by Dr. Bob McGwier, it is written in "C" and compiled for speed and it supports all features of IBM-PC QUIKTRAK along with the following features:

(1) User-selectable EGA-VGA or CGA graphics. Satellites are displayed in real-time on a map of the world. For the single satellite tracking mode, two scale factors are supplied: (a) the whole world and (b) one level of magnification around the satellite's position. A second graphics mode displays multiple satellites on a world map. In the single satellite graphics mode, you can also display the satellite footprint, the Sun line, the satellite groundtrack, and all pertinent numeric data. For educational and planning purposes, you can speed up the action and obtain a vivid demonstration of orbital dynamics. A new and highly detailed map, containing geographical boundaries, comes with the EGA-VGA graphics.

(2) Real-time tabular data screen for multiple satellite visibility from your QTH. This includes AOS and LOS status for each satellite. Data lines are color-coded for easy

recognition of out-of-view, in-view, or transitioning conditions.

(3) Real-time tabular data screen for one satellite to your QTH and multiple other locations selected from the CITIES file. Data lines are as above. Pointing-angle information is displayed for all locations.

(4) Displays Equator crossing data or apogee times and location.

(5) In all prediction modes, you can send data to the screen, the printer, or a disk file.

(6) ANSI.SYS is not used in any form (as it was in Version 3.2). Screen manipulations are done by optimized routines and write directly to the screen for maximum speed (not great for DoubleDos or DesqView, but speed is essential in manipulating EGA-VGA graphics files, since they are over 112,000 bytes for each screen when fully expanded).

(7) All internal timekeeping is done in true Julian days from January 1, 1954, the year of the first satellite launch. There will be no more leap year anomalies from trying short cuts.

(8) Visible satellite (Mir, the space shuttle, etc.) Search and Track features for those who are interested in visual observation. This routine checks to see if (a) the satellite is above the horizon, (b) the Sun is more than ten degrees below the horizon (it is dark), and (c) whether or not the satellite is in the sunlight (not in eclipse). No moonlight phenomena are accounted for. Of course, it does not predict cloud cover.

(9) A new Window Search feature allows you to choose two of 101 cities (included in your data files, and which you may modify), to find windows of mutual visibility.

(10) The Auto Tracking function (antenna rotor and radio control) is enhanced to include multi-satellite functions, both tabular and graphic. You choose the order in which the satellites are tracked internally with the data editor. This establishes tracking priority. There is a great deal of flexibility in setting up frequency data, since frequency changes with satellite mode, etc. The interface support is identical to the one supplied with the Kansas City Tracker and Tuner. You will need your own TSR (terminate and stay resident) driver to run any other interface.

(11) You can now choose between Mean Anomaly (measured in degrees) and Orbital Phase for display in the real-time tracking functions.

(12) In the real-time, single satellite, tabular mode, you can display all of the data you could possibly want regarding the satellite's orbital mechanics.

(13) One hundred satellites are in each satellite data file. One hundred cities, in addition to your own QTH, are stored in each city data file. You can keep as many of these files as the hard disk drive will hold.

(14) All data entry is in full-screen editors. Automatic data reading and loading functions read the NASA/NORAD two-line format or the AMSAT format.

(15) All function selection is menu-driven.

(16) There is also an optional program for tracking the Sun, Moon, and planets. You can listen to Jupiter and Sun noise. These routines are more accurate than other widely used programs. Routines which have corrections for parallax, mutation, etc., are included.

This superb software package is available for only \$55 to

AMSAT-NA members, \$80 non-members. Send your donation today to AMSAT-NA, 850 Sligo Avenue, Suite 600, Silver Spring, MD 20910 or call (301) 589-6062. Visa and MC accepted.

DX'ing the OSCAR'S

By John Fail, KL7GRF/6

This is a new column that will appear in each ASR. The purpose of this column is to keep OSCAR users aware of new developments in the OSCAR DX world and promote activity on the Satellites. A future article will list each and every country ever worked on OSCAR-13 or OSCAR-10. You might be surprised to learn that over 160 DXCC countries are or have been represented on the birds.

Congratulations to: Ed, WA2RDE, and Bill, KB2E, for earning their confirmed Satellite DXCC on the birds. Also to Mike, W6QUV, for being the first station to work 100 countries on AO-13.

New/Interesting DX stations recently Heard/Worked:

6W1QA / AO-13 / Mode B SSB / QSL via DB5PW
UA1ZCL / AO-13 / Mode L SSB / QSL via BOX 88, MOSCOW
TR8BL / AO-13 / Mode L SSB / QSL via *Callbook* address
P29ZFS / AO-13 / Mode B SSB / QSL via *Callbook* address
HL1EJ / AO-13 / Mode J B CW / QSL via HL bureau
4S7EA / AO-13 / Mode J B SSB / QSL via 4S7 DX Assoc., Box 80,
Columbo, Sri Lanka
VU2LO / AO-13 / Mode J B SSB / QSL via *Callbook* address
TG9SO / AO-10 & 13 / Mode B SSB / QSL via Box 144-A,
Guatemala City 01909
CE3BFZ / AO-10 & 13 / Mode J B SSB / QSL via Box 3159, Santiago 1, Chile
YN3UNI / AO-13 / Mode B SSB / QSL via K7PYK
W1YRM/KH2 / AO-13 / Mode B SSB / QSL via Box DN,
Agana, Guam 96910
Y11BGD / AO-13 / Mode B SSB / QSL via Box 2441, Baghdad
TI2SW / AO-10 & 13 / Mode B SSB / QSL via Box 708, San Jose

Keep an ear open for the following stations known to have Satellite equipment but have not been active recently. In many cases OSCAR DX'ers have recently written to these stations asking them to get on the air: 5Z4RT, 5Z4LL, 7X2AJ, 9X5NH, 5R8ADA, FR3EK D68CY, FH8CL, Z21GH, TF3SF.

The following DX stations will hopefully be operational soon: KV4FZ, KH0AC, KH0AG, VP2EHF, OA4ZV.

Upcoming OSCAR DX-peditions: ZS3 (Namibia) by ZR1L (hopefully by the end of 1989), HI (Dominican Republic) by KP4EKG sometime in October/November.

DX Tips:

The recent mail strike in Guatemala is now over. If you had QSL cards for contacts with TG9SO returned because of the strike, re-send cards to Bob at Box 144-A, Guatemala City, Guatemala 01909.

The ARRL DXCC desk will not accept a QSL card for DXCC credit unless the QSL card clearly indicates the contact was made via a Satellite. For example, a band indicated as "144/435" on a QSL card is not considered a valid card by the ARRL for Satellite DXCC credit. You should always make sure that your outgoing OSCAR QSL cards indicate "VIA AO-13 MODE B" or "VIA OSCAR-13 SATELLITE" or

another specific indication as the band in use.

In the next article I will help increase your DX QSL return rate. If you have information on new DX stations operating the birds, upcoming OSCAR DX-peditions or general DX information, send it to the address given below or look for me on Mode-B: 145.890 MHz, or Mode-J: 435.960 MHz.

Late breaking DX information is often available from several DX'ers on Mode B: 145.890 MHz. Letters and comments should be sent to John Fail, KL7GRF/6, 6170 Downey Avenue, Long Beach, CA 90805 U.S.A.

AMSAT-UK A.G.M. 1989

Chairman's Report

**By Dr. A. C. Gee, G2UK
Chairman, AMSAT-UK**

We have had another busy year and your committee have had a number of important matters to deal with. One of these which is of considerable importance to our wellbeing in the future is that of a decreasing interest in Amateur Radio. This is apparent in all aspects of Amateur Radio and has been felt in our membership in that 300 members were lost to AMSAT-UK during the year. This decline in membership has been going on for the past three years. As regards satellite interest, it is thought that there is so much information on satellites being given out by other means that folk have not felt the need to join an organization to get the information they need for participation in satellite activity, which we in AMSAT-UK regard as one of our prime functions to make available. One wonders too, if we are not giving too much attention to the "high tech" aspects of satellite activity and not enough time to the needs of the "beginners" in the field. Progress in technological advance must always take precedence and it does attract more attention not unnaturally, but if we are to keep a good supply of satellite enthusiasts coming along we must get as many into the bottom of the bunch as we can.

It is encouraging, however, to note that while we lose some members, we gain new ones and there is a steady — if small — influx of new members. The launching of some new satellites planned for the near future will no doubt increase interest once again — as usually happens. Your Committee are giving much thought to considering new ways of retaining and increasing membership. There are currently 1,980 members — there were 2,300 in 1988.

In spite of this trend, we have been able to contribute financially to supporting projects in the pipeline. We made a contribution of £5,000 to AMSAT-DL and £12,500 to the University of Surrey Spacecraft Unit towards UoSAT D.

Another important aspect of our activities has been in relation to the international relationship of Amateur Radio satellite agencies. Our Hon. Sec. has been invited to become a member of the RSGB IARU Committee, which is a very useful association. He will be preparing a paper on frequency allocations for satellites and for groups building satellites to encourage them to liaise when deciding frequency specifications, which will be presented at the next IARU Region 1 Conference in Spain next year.

As you will know, the first day of this Colloquium was devoted entirely to "international" AMSAT group matters,

which as a follow-up to the successful similar meeting we had at Godalming last year. It is to be hoped that this will become a regular feature of this Colloquium.

We have a very good relationship with AMSAT-NA now, with AMSAT Japan and with the AMSAT groups in Australia and New Zealand and with small but equally keen groups in Europe and India; and we have excellent relations with the USSR. So we can justly claim that this aspect of our activities has grown in a healthy manner which bodes well for the future.

AMSAT Stalwart W8JLE Becomes Silent Key

**By Wray Dudley, W8QW
AMSAT-NA Net Manager**

It is our sad duty to record the passing of W8JLE, Robert M. (Bob) Rogers, September 3, 1989 in Troy, Ohio.

An enthusiastic and loyal member of AMSAT-NA for over 15 years W8JLE had generously contributed his considerable talents to the organization and its operation. Among them and perhaps not generally known was his involvement in AMSAT software in association with N4HY, W5IU and KO5I. He served as a resource person of inestimable value in AMSAT twenty and fifteen meter Sunday nets for several years and was the individual responsible each year for arranging AMSAT's outstanding participation in the prestigious Dayton Hamvention.

Technically well qualified in several fields relating to electronics and communications, Bob began his professional career with Bill Lear working on the early day automatic pilot for aircraft. In initial U.S. space programs he was active in designing and testing of ground-based antenna systems. Later with Hobart Corporation he was one of the principals in the design of automatic computing electronic scales found today in supermarkets around the world.

An accomplished professional, he realized even greater satisfaction in quietly helping fellow Radio Amateurs solve an infinite variety of problems. Bob was an ultimate "Elmer". AMSAT will indeed miss his presence in many ways.

Field Day Revisited — Part I

By Dick Campbell, N3FKV

I read your editorial in *ASR* 189 with interest and pleasure as it reminded me of the great time our Club also had at Field Day this year. So, I thought I would take you up on your offer and tell you about our FD satellite station. I also have some comments about the low-tech vs. high-tech discussions.

In previous years, the Anne Arundel Radio Club (W3VPR, Davidsonville, MD) just went after the one satellite QSO for the bonus points and then concentrated on hf. As the new AMSAT Area Coordinator for this part of Maryland, I was ready to demonstrate a full-blown operation to show what we could do, and that there really were birds up there. (One member always accused me of perpetuating a myth!) I was motivated by the fact that I was moving soon and my antennas would have to come down anyway, so they were available for FD. With the help of Frank Geraci, WB1FXX, we came up with the following set up:

Antennas: 70cm — homebrew 9T helix (RHCP)
2m — KLM 14C (switchable CP)
10m — homebrew turnstile on tent poles
about 10ft. up

Rigs: ICOM 451, Mirage 70cm linear, GaAsFET preamp and 435-28 downconverter mounted on helix groundplane; KLM Echo II (yes, the xtal rig!), homebrew CCI 2m linear, ARR 2m GaAsFET, preamp; ICOM 720A, 10m GaAsFET preamp (for Mode A and J downlinks).

The 70/2 antennas were mounted on a roof tripod bolted to the top of a picnic table. The mast and cross arm were "loosened" in the rotors and pointed manually with cords attached to each end of the KLM. Our Club always runs battery/solar and no AC was available for the rotors. Of course, with AO-10/13, pointing was done with a compass and "ear bone" to peak on the beacon signal, with minor adjustments every hour or so.

My goal was to work every bird in every mode, SSB or CW. I had printed all orbit passes for each bird from Saturday morning til Sunday afternoon. Unfortunately, AO-10 was unusable for our geo-position during FD hours, so we lost that one right away. We were set up by 10 AM and worked a QSO through FO-12 on Mode JA — by talking the "rotor controller" around the pass. We were also able to catch one RS-10 pass before FD started, so we knew everything was in working order. Other Club members were starting to get excited because we had already made twice as many QSOs as in previous years and FD hadn't even started yet!

I have always like OSCARLocators because they give you a better picture of what the bird is doing and they are a good attention grabber. I had made up overlays for the new birds, and I had also brought along some of the standard literature, (*Satellite Experimenter's Handbook*, etc). We were able to hold a little school and cycle several interested operators through the station and talk them through some QSOs. We had a good visit with a reporter and even got a picture of our setup in the local paper.

All in all, we worked about 60 QSOs, mostly on AO-13 Mode B and J, about 30 percent of that CW. Alas, FO-12 also disappeared before FD started. Our very first official contact was Italy, and one of our last contacts was with Japan, as the orbit came around. We set the Club record for best DX at FD. Needless to say, we generated a lot of excitement and everyone had a great time. (I'm sorry I don't have call signs of some of these QSOs, our FD manager has the logs and I didn't make copies).

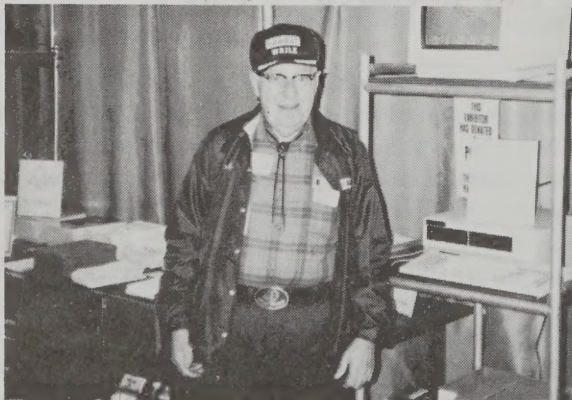
I, too, was impressed by the courtesy and lack of QRM on the birds. The high level of activity during FD was certainly a change from the norm. Late into the night, we found we had worked everybody in the passband, so we reverted to some very nice rag chews with other AMSATers in CA and HI. I agree that it is not difficult to set up a usable satellite station for FD. But it really helps to have "been there," especially for the operating skills. Although we didn't achieve my ultimate goals, we exposed satellite ops to a lot of Hams and hopefully sparked some serious interest.

(Part II will appear in the next issue.)

AMSAT® NA

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Bob Rogers, W8JLE (Silent Key), shown here working at the AMSAT Booth at the 1988 Dayton Hamvention. The big annual event won't be quite the same without him. Fortunately, in the spirit of Amateur Radio and in the start of an apparent family tradition, Bob's son, Bob Rogers, Jr., KA8JBA, has volunteered to assume the duties as the local AMSAT coordinator for the event. See story on page 3.

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